

WHAT IS CLAIMED IS:

1. A rolling apparatus which performs rolling processing of a ring in an endless metallic belt formed by annularly arranging multiple elements in a plate thickness direction, and passing the ring through each of saddle portions of the elements, comprising:

a pair of rollers which hold the ring with the ring being sandwiched therebetween, and which roll the ring, and a roller which applies tension to the ring;

a measuring device that measures a temperature of the ring before rolling;

a storing device that stores, in advance, a relation between the temperature of the ring and a condition for rolling; and

a controller that changes the condition for rolling based on the measured temperature of the ring and the relation.

2. The rolling apparatus according to claim 1, wherein the storing device stores, in advance, a relation between the temperature of the ring and a temperature correction coefficient for changing the condition for rolling; and the controller calculates the temperature correction coefficient based on the relation between the measured temperature of the ring and the temperature correction coefficient, and changes the condition for rolling based on the calculated temperature correction coefficient.

3. The rolling apparatus according to claim 1, wherein the measuring device measures, as the temperature of the ring, a temperature of one roller of the pair of rollers which roll the ring, the roller which applies tension to the ring, and a roller which contacts at least one of the rollers.

4. The rolling apparatus according to claim 1, wherein the measuring device measures, as the temperature of the ring, a temperature of a bearing for one roller of the pair of rollers which roll the ring, the roller which applies tension to the ring, and a roller which contacts at least one of the rollers.

5. The rolling apparatus according to claim 1, wherein the condition for rolling includes a condition for rolling in a rough rolling step.

6. The rolling apparatus according to claim 1, wherein the condition for rolling includes a condition for rolling in a rough rolling step and a condition for rolling in a finishing rolling step.

7. A rolling method in which rolling processing of a ring in an endless metallic belt is performed, the endless metallic belt being formed by annularly arranging multiple elements in a plate thickness direction, and passing the ring through each of saddle portions of the elements, comprising:

a step of winding a ring on one of a pair of rollers which hold the ring with the ring being sandwiched therebetween, and which roll the ring, and a roller which applies tension to the ring;

a measuring step of measuring a temperature of the ring before rolling; and

a changing step of changing a condition for rolling based on the measured temperature of the ring and a relation between the temperature of the ring and the condition for rolling, the relation being prepared in advance.

8. The rolling method according to claim 7, wherein the relation is a relation between the temperature of the ring and a temperature correction coefficient for changing the condition for rolling; and in the changing step, the temperature correction coefficient is calculated based on the measured temperature of the ring and the relation, and the condition for rolling is changed based on the calculated temperature correction coefficient.

9. The rolling method according to claim 7, wherein in the measuring step, a temperature of one roller of the pair of rollers which roll the ring, the roller which applies tension to the ring, and a roller which contacts at least one of the rollers is measured as the temperature of the ring.

10. The rolling method according to claim 7, wherein in the measuring step, a temperature of a bearing for one roller of the pair of rollers which roll the ring, the roller which applies tension to the ring, and a roller which contacts at least one of the rollers is measured as the temperature of the ring.

11. The rolling method according to claim 7, wherein the condition for rolling includes a condition for rolling in a rough rolling step.

12. The rolling method according to claim 7, wherein the condition for rolling includes a condition for rolling in a rough rolling step and a condition for rolling in a finishing rolling step.

13. A rolling apparatus which performs rolling processing of a ring in an endless metallic belt formed by annularly arranging multiple elements in a plate thickness direction, and passing the ring through each of saddle portions of the elements, comprising:

a pair of rollers which hold the ring with the ring being sandwiched therebetween, and which roll the ring, and a roller which applies tension to the ring;

measuring means for measuring a temperature of the ring before rolling;

storing means for storing, in advance, a relation between the temperature of the ring and a condition for rolling; and

changing means for changing the condition for rolling based on the measured temperature of the ring and the relation.